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CASTANEA

The Journal of the Southern Appalachian Botanical Club

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All persons interested in the botany of the Southern Appalachian Mountains are invited to join the club. Dues, including subscription to the Journal, are $3.00 per year. Single copies of *Castanea*, seventy-five cents.

Notes and short scientific papers relating to the botany of the region are welcomed and will be published to the extent that the size of the Journal allows.

Authors will receive six gratuitous copies of the issue in which their papers appear. Separate reprints, if ordered in advance, will be furnished at cost.

CASTANEA

The Journal of the Southern Appalachian Botanical Club

Vol. 17 December, 1952 No. 4

The Vegetation and Floristics of Bull Run Mountain, Virginia[1]

H. A. Allard and E. C. Leonard

Intensive collecting throughout the Bull Run area since 1943 by the senior author has added many plants which were not listed in the original paper or supplemental list. In this, the second supplemental list, the nomenclature conforms, so far as possible, with that of Gray's Manual of Botany, 8th ed., 1950. All collections here reported were found in Fauquier County, except where otherwise indicated.

POLYPODIACEAE

Athyrium acrostichoides (Sw.) Diels. One mile north of Hopewell Gap in interior valley.

Athyrium filix-femina (L.) Roth var. asplenioides (Michx.) Farw. In damp woods 2 mi. north of Hopewell Gap.

Athyrium filix-femina (L.) Roth var. asplenioides (Michx.) Farw. forma bipinnatifidum (Butters) Fern. In damp woods 2 mi. north of Hopewell Gap, occurring with preceding variety, both infrequent.

Cystopteris fragilis (L.) Bernh. var. protrusa Weatherby. On low, wooded flood plain of Broad Run, 3 mi. south of Thorofare Gap.

ALISMATACEAE

Sagittaria latifolia Willd. var. pubescens (Muhl.) J. G. Sm. In swale on west slope of Pond Mountain in pasture just south of Thorofare Gap ½ mi. (*S. pubescens* Muhl. of the Bull Run flora).

[1]Second supplement of additions and corrections. Previous papers Castanea 8:1-64, and 9:130-134

GRAMINEAE

ERAGROSTIS FRANKII C. A. Meyer. In damp soil 1½ mi. south of Thorofare Gap near Broad Run.

ELYMUS VILLOSUS Muhl. In moist woods on east slope of Pond Mountain, and also east of the New Baltimore Highway.

PANICUM FLEXILE (Gatt.) Scribn. In pasture on west slope of Pond Mountain 1½ mile south of Thorofare Gap.

PANICUM SPHAERICUM Lam. In swale, west slope of Pond Mountain just south of Thorofare Gap.

PASPALUM CIRCULARE Nash. In moist low ground near Broad Run 2 mi. south of Thorofare Gap.

POA AUTUMNALIS Muhl. In moist woods on east slope of Pond Mountain, and east of the New Baltimore Highway.

SETARIA FABERII Herrm. Along railroad near Beverley Mill, Thorofare Gap. Infrequent and recently occurring here. Natzd. from east Asia.

CYPERACEAE

CAREX AMPHIBOLA Steud. In low ground 1½ mi. north of Hopewell Gap.

CAREX JAMESII Schwein. Wooded banks along Broad Run, 2½ mi. south of Thorofare Gap.

CAREX LEPTALEA Wahl. On brook bank in swamp 2½ mi. north of Hopewell Gap in Jackson Hollow.

CAREX MUHLENBERGII Schkuhr. On crest of ridge of Pond Mountain south of Thorofare Gap.

CAREX OLIGOCARPA Schkuhr. In thicket on wooded bank of Broad Run 2½ mi. south of Thorofare Gap.

CAREX SHORTIANA Dewey. Roadside near Beverley Mill, Thorofare, Gap, and on flood plain along Broad Run 2½ mi. south of Thorofare Gap.

CAREX TYPHINA Michx. On flood plain along Broad Run 2½ mi. south of Thorofare Gap.

SCIRPUS RUBRICOSUS Fetth. (*S. eriophorum* Michx.)

LILIACEAE

ALLIUM VINEALE L. forma COMPACTUM (Thuill.) Aschers. Umbel wholly of bulbs or nearly so. In old field west slope of Pond Mountain, just south of Thorofare Gap; frequent.

ALLIUM VINEALE L. forma CAPSULIFERUM (W.D.J. Koch) Aschers & Graebn. Umbel bearing numerous flowers. In meadow on west

slope of Pond Mountain, just south of Thorofare Gap. It is probable that environmental conditions may be in part responsible for the variations in presence or absence of bulbs and flowers in the umbel, as both forms are not infrequent in occurrence.

SMILAX PSEUDOCHINA L. In rich woods on east slope of Pond Mountain 2 mi. south of Thorofare Gap; infrequent.

SMILAX TAMNOIDES L. var. HISPIDA (Muhl.) Fern. (*Smilax hispida* Muhl. of the Bull Run flora.) In thickets and woods along Broad Run and in low grounds and elsewhere in the area.

IRIDACEAE

IRIS VERSICOLOR L. A colony in swale near Broad Run ½ mi. south of Thorofare Gap. The only known locality in the area, and very rare here.

ORCHIDACEAE

HABENARIA PERAMOENA A. Gray. In swale on west slope of Pond Mountain just south of Thorofare Gap. Rare in this area.

LIPARIS LOESELII (L.) Richard. Woods on west slope Bull Run Mountain near Hopewell Gap. Rare in the area.

CORYLACEAE

ALNUS SERRULATA (Ait.) Willd. In moist soil along springs and brook on west slope of Pond Mountain 3 mi. south of Thorofare Gap. (*Alnus rugosa* (Ehrh.) Spreng of the Bull Run flora.)

ULMACEAE

ULMUS AMERICANA L. forma LAEVIOR Fern. The young branches are glabrous in this form. Along Bull Run 3 mi. south of Thorofare Gap, and also west of Beverley Mill, Thorofare Gap.

ULMUS AMERICANA L. forma PENDULA Fern. Along Broad Run south of Thorofare Gap 3 mi., and in pasture north of Hopewell Gap.

POLYGONACEAE

POLYGONUM TENUE Mich. In dry pasture on west slope of Pond Mountain 3 mi. south of Thorofore Gap; infrequent.

CARYOPHYLLACEAE

LYCHNIS ALBA Mill. In old field on east slope of Pond Mountain 2 mi. south of Thorofare Gap.

LYCHNIS DIOICA L. On edge of corn field in waste ground 1 mi. south of Thorofare Gap on west slope.

SILENE NIVEA (Nutt.) Otth. In damp thicket near Broad Run 2 mi. south of Thorofare Gap, east of the Pond Mountain area.

SILENE STELLATA (L.) Ait. var. SCABRELLA Nieuwland. In woods on ridge crest of Pond Mountain 2 mi. south of Thorofare Gap. Much of our material previously called *S. stellata* in our Bull Run paper appears to be the var. *scabrella*.

RANUNCULACEAE

CLEMATIS VIRGINIANA L. In thickets on east slope of Pond Mountain just south of Thorofare Gap.

HEPATICA AMERICANA (DC.) Ker forma CANDIDA Fern. A colony with pure white flowers in dry woods on the southern extension of Pond Mountain 2½-3 mi. south of Thorofare Gap; infrequent.

CALYCANTHACEAE

CALYCANTHUS FERTILIS Walt. In damp, rich woods 3 mi. north of Hopewell Gap, near the remains of an old cabin site. A vigorous colony here struggling with the invading forest. Also south of Thorofare Gap 3 mi., in the Pond Mountain area, also in waste ground near an old cabin site.

PAPAVERACEAE

DICENTRA CUCULLARIA (L.) Bernh. On wooded banks along Broad Run east of Pond Mountain and south of Thorofare Gap 3-3½ mi. Rare and very local in the Bull Run area, this being the only known locality.

CRUCIFERAE

RAPHANUS RAPHANISTRUM L. In waste ground near Broad Run 1 mi. south of Thorofare Gap. (Natzd. from Eu.)

SAXIFRAGACEAE

HEUCHERA AMERICANA L. On wooded bluff along Broad Run 1 mi. south of Thorofare Gap, on a Triassic conglomerate outcrop; infrequent in the area.

ROSACEAE

RUBUS APIANUS Bailey. Growing in cleft of highest cliffs of crest of Pond Mountain 2½ mi. south of Thorofare Gap.

LEGUMINOSAE

Amphicarpa bracteosa L. var. comosa (L.) Fern. In thicket along railroad near Beverley Mill, Thorofare Gap.

Desmodium glabellum (Michx.) DC. (*D dillenii* of the Bull Run flora.) Common in clearings of fields and open woods.

Lespedeza capitata Michx. In thicket near Broad Run south of Thorofare Gap; infrequent.

Glycine max (L.) Merr. (*G. soja* (L.) Sieb. & Zucc.) Introduced from Asia and much planted in the area. Sometimes escaped in old fields, but not persisting. In old field on west slope of Pond Mountain, 2½-3 mi. south of Thorofare Gap.

Trifolium hybridum L. var. elegans (Savi) Boiss. At Hopewell Gap and along Broad Run south of Thorofare Gap 1½-2 mi. A smaller plant throughout than the typical form. Natzd. from Eu.

Vicia villosa Roth. In waste ground on bank along pasture lane west slope of Pond Mountain 2 mi. south of Thorofare Gap. Int. and natzd. from Eu.

OXALIDACEAE

Oxalis europaea Jordan. In pasture near old house site on west slope of Pond Mountain 3 mi. south of Thorofare Gap.

EUPHORBIACEAE

Croton glandulosus L. Abundant along railroad near Beverly Mill, Thorofare Gap. Very local and the only known record in the Bull Run area.

CALLITRICHACEAE

Callitriche palustris L. In brook in Jackson Hollow 2 mi. north of Hopewell Gap.

ANACARDIACEAE

Rhus aromatica Ait. On ledges on crest of ridge of Pond Mountain 2-2½ mi. south of Thorofare Gap. Intermingled with *R. toxicodendron* L. var *leiocarpa* Fern.

CELASTRACEAE

Celastrus orbiculatus Thunb. Material found north of Hopewell Gap along a wall near an old house site and transplanted in the senior writer's garden has proved to be this species. The leaves are sub-orbicular to broadly ovate with crenate teeth, whereas the native

species also found in this area in the Bull Run flora has ovate-oblong and finely serrate leaves. *C. orbiculatus* was introduced from east Asia, and is now naturalized. Prince William County.

EUONYMUS ATROPURPUREUS Jacq. Along Broad Run 2 mi. south of Thorofare Gap. Local and infrequent in the area.

BALSAMINACEAE

IMPATIENS PALLIDA Nutt. forma SPECIOSA Jenn. On flood plain of Broad Run 2½ mi. south of Thorofare Gap, east of Pond Mountain. Very abundant and the dominant form here, growing with *I. capensis* Meerb. (*I. biflora* Walt of the Bull Run flora.)

VITACEAE

AMPELOPSIS BREVIPEDUNCULATA (Maxim.) Trautv. Along old wood road in Jackson Hollow 2½ mi. north of Hopewell Gap. Rare and the only record in our area; int. from Asia. Prince William Co.

MALVACEAE

HIBISCUS TRIONUM L. In abandoned garden 8 mi. from Aldie, 3½ mi. south of Route 50. A weed in waste ground. Prince William Co.

ONAGRACEAE

EPILOBIUM ADENOCAULON Haussk. In thicket west slope of Pond Mountain near Thorofare Gap. Fl. purplish; coma white; abundant.

LUDWIGIA POLYCARPA Short & Peter. In wet boggy meadow near Broad Run 2 mi. south of Thorofare Gap; infrequent.

OENOTHERA FRUTICOSA L. var. LINEARIS (Michx.) S. Wats.

OENOTHERA TETRAGONA Roth. var. LONGISTIPATA (Pennell) Munz. In wet soil near Broad Run 1 mi. south of Thorofare Gap; local.

CORNACEAE

CORNUS FLORIDA L. forma RUBRA (Weston) Palmer & Steyerm. Flowers pink, showy. In pasture west of old cabin just south of Hopewell Gap. Occasional individuals throughout the area are faintly pink or sometimes distinctly reddish.

OLEACEAE

LIGUSTRUM AMURENSE Carr. Planted at Beverley Mill in Thorofare Gap, and escaped along the railroad and on ridge near by. (Int. and natzd. from Japan.)

GENTIANACEAE

GENTIANA ANDREWSII Griseb. In damp meadow in Pond Mountain area 2-2½ mi. south of Thorofare Gap just east of highway 60 to New Baltimore. Rare, and the only record in the Bull Run-Pond Mountain area.

BORAGINACEAE

MERTENSIA VIRGINICA (L.) Link forma ALBA Allard. A single plant with pure white flowers on flood plain of broad Run 3 mil. south of Thorofare Gap.

LABIATAE

HEDEOMA HISPIDA Pursh. Wet muddy soil along Broad Run 1½ mi. south of Thorofare Gap.

PRUNELLA VULGARIS L. var. LANCEOLATA (Bart.) Fern. In old field south of Hopewell Gap.

PRUNELLA VULGARIS L. var. LANCEOLATA (Bart.) Fern. forma CANDIDA Fern. Fl. white.

SCUTELLARIA NERVOSA Pursh. In moist shaded woods along Broad Run 3 mil. south of Thorofare Gap; infrequent.

SOLANACEAE

PHYSALIS HETEROPHYLLA Nees var. AMBIGUA (A. Gray) Rydb. In old field 1½ mi. north of Hopewell Gap.

SCROPHULARIACEAE

GRATIOLA NEGLECTA Torr. In mud of brook east of New Baltimore Highway just south of Thorofare Gap; occasional.

BUCHNERA AMERICANA L. A small colony in old pasture on west slope of Pond Mountain 2-2½ mi. south of Thorofare Gap. The only locality for this species in the area; rare here.

OROBANCHACEAE

OROBANCHE UNIFLORA L. In dry woods on east slope of High Point ridge 1½-2 mi. north of Thorofare Gap; infrequent.

ACANTHACEAE

RUELLIA CAROLINIENSIS (Walt.) Steud. var. MEMBRANACEA Fern. (*R. caroliniensis* (Walt.) Steud. of Bull Run paper.)

RUBIACEAE

DIODIA TERES Walt. VAR. SETIFERA Fern. & Griscom, is wrongly listed, in the Bull Run flora, as var. *setifolia* Fern. & Griscom.

CAMPANULACEAE

SPECULARIA PERFOLIATA (L.) A.DC. A form with pure white flowers. In an old pasture on west slope of Pond Mountain 2-2½ mi. south of Thorofare Gap.

COMPOSITAE

ACHILLEA MILLEFOLIUM L. forma ROSEA Rand & Redf. In pasture on west slope of Pond Mountain 2 mi. south of Thorofare Gap; occasional.

ASTER ERICOIDES L. VAR. PROSTRATUS (Kuntze) Fern. On western edge of Triassic area 8 mi. from Aldie, 5 mi. from Bull Run Beacon Tower. More common on the Triassic area.

ASTER NOVAE-ANGLIAE L. On roadside bank on west slope of High Point ridge near Broad Run Station; infrequent.

CICHORIUM INTYBUS L. forma ALBUM Neum. A form with white flowers. Near Beverley Mill at Thorofare Gap.

EUPATORIUM ALBUM L. VAR. MONARDIFOLIUM Fern. In low ground along Broad Run 2 mi. south of Thorofare Gap.

EUPATORIUM HYSSOPIFOLIUM L. VAR. CALCARATUM Fern. & Schub. In old pasture north of Hopewell Gap 2 mi.

EUPATORIUM LEUCOLEPIS T. & G. In waste ground on the Triassic area just north of Thorofare Gap.

EUPATORIUM PERFOLIATUM L. forma PURPUREUM Britt. A form with deeply purplish red-tinged heads. In wet meadow on the west slope of Pond Mountain just south of Thorofare Gap.

HELENIUM AUTUMNALE L. In wet soil in meadow along Broad Run 2 mi. south of Thorofare Gap.

HELENIUM NUDIFLORUM Nutt. In wet soil of meadow near Broad Run 2 mi. south of Thorofare Gap. Growing intermingled with *H. autumnale*. Both species are infrequent in the Bull Run area.

LACTUCA CANADENSIS L. VAR. LATIFOLIA O. Ktze forma EXAURICULATA Wieg. By roadside at Thorofare Gap.

LACTUCA SPICATA (Lam). Hitch. VAR. INTEGRIFOLIA (A. Gray) Britt. Along railroad at Thorofare Gap just north of Beverley Mill.

RUDBECKIA SEROTINA Nutt. In old field north of Hopewell Gap; common.

RUDBECKIA SEROTINA Nutt. var. SERICEA (T. V. Moore) Fern. & Schub. In moist soil in swale on west slope of Pond Mountain 1/4 mi. south of Thorofare Gap.

SOLIDAGO GIGANTEA Ait. var. LEIOPHYLLA Fern. In dry field north of Hopewell Gap.

WASHINGTON, D.C.

Original Vegetation in the Bluegrass Region of Kentucky

B. B. MCINTEER

Description of Region

The "Bluegrass Region" of Kentucky, occupying about 7,000 square miles in the north central part of the state, is composed of three rather distinct areas—the inner or Trenton outcrop, the Eden shale belt, and the outer or Maysville formation. The outer two, together, are referred to as the Cincinnatian. The three areas are similar in that they are rich in calcium and phosphorus (resulting from the disintegration of rock having some form of calcium phosphate) and are low in acidity. They differ, however, in topography, for while the Trenton and Maysville regions are gently rolling, the Eden shale belt has a more rugged topography with sharp ridges and narrow valleys. The texture of the soil differs, with the Eden shale belt having more silt and clay than the other two areas. The Trenton outcrop is the most productive of cultivated crops with the Maysville ranking second. The Eden shale belt is rather rich in essential minerals, but is not very productive. In the first place, this uneven topography causes the water run-off to be great, and in the second place, the soil is not very deep, due to rapid erosion. Therefore, the region is susceptible to droughts. This erosion which brought about the undesirable relief and the thinness of the soil layer is due to the fine texture of the soil and to the shaly nature of the bedrock.

Notes from Early Writers

Marshall (1824) when writing of the conditions at the time of the arrival of his party at the plains of the Elkhorn, explained that the forest was composed of species of oak, ash, walnut, cherry, buckeye,

hackberry, maple, locust, sycamore, and coffee tree, while underneath were grasses and clover. Stickney (1872) stated that the site of Lexington and the surrounding country was covered with heavy timber under which was a thick growth of canes which was intertwined with pea-vine.

Woods (1905) when writing of a site near what is now Frankfort, stated that James (one of the surveying party) had written in his notes that in a tract of land of about 600 acres which was surveyed for Robert McAfee, about 100 acres was "meadow ground."

Walker (DeBow 1854) said that the land was covered with woods in which was "clover in full bloom." And Nourse (1919) explained that on the tops of the hills the trees were "'scraggy" and that the ground was covered with grass. On the better land both black and honey locusts were mixed with other trees under which was a good growth of bluegrass, white clover, and buffalo grass.

The McAfee Brothers (DeBow 1854) when speaking of their travels, referred to portions that were timbered and to portions that were covered with cane and clover. They stated, too, that those parts with a light growth of timber had a good growth of grass underneath. Thomas Hanson (Draper Mss. 24CC33-34) while making surveys near what is now Lexington kept notes in which he stated that the undergrowth was clover, pea-vine, and cane while the timber was composed of honey locust, black walnut, oak, maple, hickory, ash and elm.

Simon Girty (Townsend 1932) while trying to inspire his Indian followers, stated that "the fertile region of Kentucky is the land of cane and clover—spontaneously growing to feed the buffalo, elk and deer." He referred to the fact that the whites had destroyed much of the cane and had trodden down the clover of the fields. Samuel Matthew (Draper Mss. 11CC158) brought out the fact that locusts were abundant near Bryan's Station. Also other trees, such as walnut, hackberry, elm, and maple were present. Levi Todd (Draper Mss 15CC157-162) explained that around Bryan's Station were weeds of various kinds including wild grass, wild rye, and clover.

Filson (1784) wrote that the Elkhorn lands were much esteemed, for they were "beautifully situated" and were covered with wild rye, clover, and cane. And further, he explained that the cattle grew fat on the cane which was very abundant. He also stated that where the cane did not grow there was an abundance of wild rye, clover, and buffalo grass. And Jedidiah Morse (1789) explained that the

"natural growth" of trees included walnut, black locust, honey locust, poplar, elm, oak, hickory, and sugar maple. The chances are that his "poplar" was *Liriodendron tulipifera*, for that tree is often called poplar or yellow poplar.

Finley (1853), when writing about the extensive canebrakes, explained that the land on which his father settled was known as Cane Ridge, because it was land which was covered with cane. This place is in Bourbon County. He also stated that the cane extended for twenty miles in the direction of Mount Sterling.

Discussion

We have reasons to believe that these early writers were accurate in their statements, but we are unable to understand how conditions were, for we are unable to comprehend the full significance of some of their explanations. Conflicting ideas have been advanced by contemporary writers about the importance of these early records and about the type of vegetation which covered the respective regions. It is true that certain relative terms are not very well used and are often misinterpreted. For instance, it is frequently stated that the growth of timber was dense or that there was a heavy growth of timber and in the same paragraph (or even in the same sentence) were explanations that there was an undergrowth of grasses and clover. We wonder which species was called "white clover" by these early pioneers, for *Trifolium repens* is an introduced species. No doubt it was a legume and perhaps some species of *Trifolium*. These grasses and legumes cannot grow in a dense shade or in a forest that we generally think of as compact, for they are what is termed "intolerant" to shade—requiring an abundance of light. Perhaps these early writers meant that there was a sufficiency of these trees to supply the needs of the pioneers for fuel, fences, and building material. And, no doubt, there was much of the land which had a very compact growth of oaks, hickories, maples, and beech, for we see many old trees of the species of these genera which are generally associated with a dense forest. But when these men wrote of a forest containing black locust, honey locust, and sycamore, with an undergrowth of grasses and clover, the forest could not have been very compact, for these particular plants cannot grow in a compact forest, since they all require an abundance of light. Of all our trees, they are among the least tolerant to shade. These men were accurate in their statements that grasses and clover were growing under such trees, for the intoler-

ant trees have an open crown which permits the passage of sufficient light to satisfy the needs of such undergrowth.

I wish to add to the above the importance of the consideration of the presence of bur oak (*Quercus macrocarpa*) as a criterion of the former conditions relative to the native vegetation of this particular region. We might think of the large specimens of this species of tree as being relics and with the proper interpretation we can ascertain the former conditions.

The presence of old bur oaks (many individuals being over 300 years old) indicates that those particular points or sites producing the trees had open forest, for this species cannot grow in compact forest. This bur oak is a common species in the Inner Bluegrass Region and is found to some extent in the Cincinnatian Region, but not in a compact forest, for it must have intense light. Weaver and Clements (1938) cited a few plants and classified them according to tolerance (placing them in three groups) and bur oak is listed among the least tolerant.

There are hudreds of specimens of bur oak in the Inner Bluegrass Region that range from 3½ feet in diameter (waist high) to more than six feet. Davidson (1950) recorded many places in Fayette County which had several of these large trees per acre. These trees were here when this part of Kentucky was settled 180 years ago and these largest ones were large trees at that time, for they are estimated to be more than 400 years old. Many of these trees are isolated individuals or are in very small groups while others form a more elaborate growth on a more extensive area. These small groups may merely indicate that only a few square yards or a small fraction of an acre had an open forest, but when we see that there are cases in which a score or more trees are found to each acre and with the tract of land covering several acres, we are inclined to feel that there were extensive areas that had an open forest composed of these trees, grasses, clover, etc.

It was noticeable when driving on the various roads and making notes, that specimens of bur oak were present only where it was quite dry or where it was wet—almost too wet for all cultivated crops. And while the bur oak cannot compete successfully for light in the presence of oaks, hickories, maples, and beech, the species can hold its own on the dry knolls where water is the limiting factor and on the wet land at which place oxygen is perhaps the limiting factor.

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University of Kentucky

Lexington

Lawrence William Nuttall[1]

Earl L. Core

The steep hillsides, deep gorges, and flat-topped mountains of Fayette County, West Virginia, were the fascinating collecting grounds of Lawrence William Nuttall, a botanist who made a major contribution to the knowledge of the botany of West Virginia and left his impression on American botany in general. While not closely related to Thomas Nuttall, he added luster to the family name in the realm of plant science after the manner of his earlier namesake.

Lawrence William Nuttall was born near Philipsburg, Pennsylvania, September 17, 1857, the son of John Nuttall, who was born near Accrington, Lancashire, England, in 1817. Lawrence was the first member of his family to be born out of England. He was educated at Perryville Academy, Port Royal, Pa., where he took great interest in botany. His instructor, noting this unusual interest, gave him extra attention and took him for walks on Saturdays and Sundays.

[1]Contribution No. 68 from the Herbarium of West Virginia University.

In 1870 John Nuttall bought 800 acres of coal property along the New River in Fayette County, later adding many more acres to these. The Chesapeake & Ohio Railroad was completed along New River in 1873 and Mr. Nuttall began the operation of a mine. The first shipments were stencilled "Nuttall" and the C. & O. put this name on their time-tables, although Mr. Nuttall suggested the name Nuttallburg for the village, which was accepted by the Post Office Department.[2]

In 1878, Lawrence Nuttall finished his schooling and came to Nuttallburg to help his father operate the mine. His duties were described as secretary-treasurer of the coal company and private secretary to his father.

As soon as he arrived at Nuttalburg he began botanizing in the vicinity. Most of his tasks at the mine could be accompanied in the forenoons, thus leaving the afternoons free for trips or for study.

On November 11, 1884, he married Miss Katherine DuBree, of Philipsburg, Pa., to which union was born one son, John, and another who died in infancy. His wife was interested in butterflies, so that this union proved a further stimulus to his botanical studies. Many of his specimens were sent to his old teacher for identification, but often he was unable to name them and sent them on to higher authorities. One of these authorities was J. B. Ellis, of Plainfield, N.Y., to whom Mr. Nuttall sent many species of fungi which he found. For many years Mr. Nuttall and Mr. Ellis wrote each other about twice a week.[3]

Another of these authorities was Dr. C. F. Millspaugh[4] who came to West Virginia University as Botanist in 1889. Dr. Millspaugh quickly became engaged in a survey of the plant life of the State and visited L. W. Nuttall at Nuttallburg in August, 1891. In 1892 Dr. Millspaugh published a "Preliminary Catalogue of the Flora of West Virginia"[5] using freely the list compiled by Mr. Nuttall. This association with Dr. Millspaugh evidently inspired the Fayette County botanist to still greater efforts and during the period from 1890 to 1897 he collected about 1000 species of flowering plants and hundreds of fungi. Many of the fungi proved new to science and at least 108 species were described as new. Four specimens of lichens were also

[2]**How John Nuttall developed the Keeney's Creek Section,** Fayetteville (W.Va.) **State Sentinel,** February 6, 1952.

[3]John Nuttall, (II), letter to the author, March 7, 1952.

[4]See E. L. Core, Contributions of Charles Frederick Millspaugh to the Botany of West Virginia. Proc. W.Va. Acad. Sci. 8:82-83. 1935.

[5]W.Va. Agr. Exp. Sta. 2 (12):315-536. (Bull. 24) 1892.

described as new species. The list of these new species from Fayette County is given below:

Fungi

Botrytis olivacea E. & E.
Botrytis torta E. & E.
Verticillium osteophilum E. & E.
Stachylidium caricinum E. & E.
Cladosporium nigrellum E. & E.
Clasterosporium Cornutum E. & E.
Helminthosporium brachypus E. & E.
Cercospora Œnotherae E. & E.
Cercospora Chionantha E. & E.
Cercospora septorioides E. & E.
Macrosporium olivaceum E. & E.
Trichaegum nodulosum E. & E.
Septosporium Equiseti Peck.
Pilacre gracilipes E. & E.
Isaria Virginiensis E. & E.
Tubercularia hamata E. & E.
Illosporium caespitosum E. & E.
Hymenula cerealis E. & E.
Cylindrocolla dendroctoni Peck.
Cylindrocolla flagellaris E. & E.
Microcera erumpens E. & E.
Phyllosticta Ribis E. & E.
Phyllosticta Quercus-prini E. & E.
Phyllosticta macrospora E. & E.
Phyllosticta lindericola E. & E.
Phyllosticta Oxydendri E. & E.
Phyllosticta Celastri E. & E.
Phyllosticta globifera E. & E.
Phyllosticta Xanthorrhizae E. & Nuttall
Phyllosticta cercidicola E. & E.
Phyllosticta Araliae E. & E.
Phyllosticta Castaneae E. & E.
Phyllosticta opaca E. & E.
Phoma negundinicola ramicola E. & E.
Phoma Pennsylvanica E. & E.
Phoma Asclepiadea E. & E.
Phoma obscurans E. & E.
Aposphaeria pezizoides E. & E.
Sphaeronaema Infuscans E. & E.
Sphaeronaema Physocarpi E. & E.
Vermicularia Trautvetteriae Nuttall
Dothiorella Asiminae E. & E.
Dothiorella minor E. & E.
Fusicoccum ilicinum E. & E.
Cytispora Celtidis E. & E.
Cytispora Halesiae E. & E.
Cytispora exasperans E. & E.
Cytispora caryigena E. & E.
Cytispora Rhois-hirtae Nuttall
Cytispora Sassafras E. & E.
Sphaeropsis Asiminae E. & E.
Sphaeropsis Asiminae fructigena E. & E.
Sphaeropsis Physocarpi E. & E.
Sphaeropsis Œnotherae E. & E.
Sphaeropsis Ipomoeae E. & E.
Haplosporella Celtidis E. & E.
Haplosporella Araliae E. & E.
Diplodia Cercidis E. & E.
Diplodia infuscans E. & E.
Diplodia caryigena E. & E.
Botryodiplodia acerina E. & E.
Stagonospora petiolorum E. & E.
Stagonospora pedunculi E. & E.
Camarosporium Linderae E. & E.
Septoria Tecomae E. & E.
Septoria Brassicae E. & E.

Septoria Polymniae E. & E.
Septoria Trautvetteriae E. & E.
Septoria hyalina E. & E.
Phlyctaena Ipomoeae E. & E.
Sacidium Vitis E. & E.
Glocosporium Sanguinariae E. & E.
Glocosporium Rumicis E. & E.
Glocosporium Alni E. & E.
Glocosporium rubicolum E. & E.
Myxosporum luteum E. & E.
Myxosporium platanicolum E. & E.
Myxosporium seriatum E. & E.
Cylindrosporium Crataegi E.& E.
Coryneum cupulatum E. & E.
Pestalozzia Toxica E. & E.
Valsa Diospyri E. & E.
Valsa etherialis E. & E.
Valsa albopuncta E. & E.
Valsa Chionantha E. & E.
Eutypella densissima E. & E.
Anthostoma microccium E. & E.
Hypoxylon atrovitide E. & E.
Hypoxylon Nuttallii E. & E.
Didymella Physocarpi E. & E.
Diaporthe Araliae E. & E.
Diaporthe (Chorostate) Halesiae E. & E.
Diaporthe (Chorostate) Tetrapterae E. & E.
Diaporthe Hydrangeae E. & E.
Massaria Magnoliae E. & E.
Trematosphaeria vitigena E.& E.
Pleosphaeria corticola E. & E.
Hypocrea Virginiensis E. & E.
Hypocrea tenerrima E. & E.
Lophidium nitidum E. & E.
Cyathicula quisquiliaris E. & E.
Lachnella Virginica E. & E.
Helotiella Nuttallii E. & E.
Dermatella viticola E. & E.
Tympanis Oxydendri E. & E.
Corticium albo-flavescens E.& E.
Corticium leptaleum E. & E.

Lichens

Lecanora deplanans Nyl.
Lecidea Nuttallii Calk & Nyl.
Lecidea virginiensis Calk. & Nyl.
Arthronia aleuromela Nyl.

Plants which have been named for Mr. Nuttall include *Hypoxylon Nuttallii* E. & E., *Helotiella Nuttallii* E. & E., *Phyllachora Nuttalliana* Fairman, *Lecidea Nuttallii* Calk. & Nyl., *Jepsonia neonuttalliana* Millspaugh and *Anychia Nuttallii* Small (*Paronychia fastigiata* var. *Nuttallii* Fernald).

In 1894 Dr. Millspaugh was made curator of botany at the Field Museum of Natural History in Chicago, but retained his interest in the botany of West Virginia and continued to correspond with Mr. Nuttall. In January, 1896, they published jointly their "Flora of West Virginia"[6], which contained nearly 1000 additions to the list

[6]"Flora of West Virginia", by Charles Frederick Millspaugh and Lawrence William Nuttall. Field Columbian Museum Bot. ser. 1, No. 2:65-276. 1896.

LAWRENCE WILLIAM NUTTALL

of 1892. Of the 980 species of fungi listed the major portion came from Fayette County.

An interesting discovery among the seed plants was *Carex Fraseri*, which was collected by Mathias Kin in "Deigher Walli" (probably Tygart's Valley) around 1800, but which had not been seen since by a botanist. Mr. Nuttall found a large colony in Fayette County and sent specimens to the Torrey Botanical Club in New York about 1891, where they were exhibited and commented on as an interesting re-discovery.[7]

At about this time Mr. Nuttall became acquainted with John Kunkel Small, of the New York Botanical Garden, who was spending some of his vacations in West Virginia.[8] Later Dr. Small, as is well known, became interested in the botany of the southeastern States and devoted a great deal of time to exploring that region. Dr. Small and Mr. Nuttall spent several winters in Florida, collecting specimens and preparing the data on which Small's "Flora of the Southeastern States" was based in part.

In 1897 John Nuttall died and Lawrence Nuttall and his brother-in-law Jackson Taylor became sole managers of the old Nuttall mine. The mine showed no profit for many years and in 1903 it was sold. In 1892 another brother-in-law, George McGaffey, had joined with some other men in opening the First National Bank of Philipsburg, and soon became its president: in 1907 he invited Mr. Nuttall to move to Philipsburg and to associate himself in that enterprise. He went thereupon to Philipsburg, and upon the death of Mr. McGaffey, in 1915, was himself elected president of the bank and served a number of years as such.

A part of his time was still devoted to the study of wild flowers, the springs and summers in Pennsylvania and the winters in Florida, Tucson, and San Antonio. During this time he supplied Mr. Elam Bartholomew with a number of species in quantity, for his "North American Uredinales".

In 1902, when Mr. and Mrs. Nuttall were on a Mediterranean cruise they met Dr. and Mrs. D. B. Purinton, and the two couples became warm friends. Dr. Purinton was President of West Virginia University at the time and in 1906 he asked Mr. Nuttall to come to Morgantown to assist in identifying rusts and other fungi for the Agricultural Experiment Station. That summer the Nuttall family

[7] See Prel. Cat. Flora W.Va. 462.
[8] See Mem. Torr. Bot. Club 4:112. 1894.

of 3 went to Morgantown and stayed about six weeks. However, the work was gratis and Mr. Nuttall had no formal appointment."

In 1919 Dr. Millspaugh, still at the Field Museum, wrote to Mr. Nuttall with respect to a project on the flora of Catalina Island, off the coast of California. This was largely unknown botanically and Millspaugh suggested to his old West Virginia friend that he undertake the investigation of this flora. Mr. Nuttall was delighted at the prospect and he and his wife went to California and spent about two years there. He began collecting on Catalina April 27, 1920, and continued until October, then intermittently until February 19, 1921, collecting a total of 1250 numbers. The result was the publication of a book, in 1923, by Millspaugh and Nuttall on the flora of Catalina Island.[10] A total of 882 species were described in detail, including many previously undescribed, especially among the fungi. The evenness of the temperature impressed them and they returned to Philipsburg with the resolution that they would some day go back to California to live.

Early in 1927 Mr. and Mrs. Nuttall were visiting their son John, who was operating a coal yard in York, Penna. John remarked that he was about to sell his business and his father and mother then proposed that the two families move to San Diego and take up their residences near each other. John said, "we could hardly refuse such a request; the more we thought about it the more alluring it sounded to us". So they all moved to San Diego in August, 1927.

When Mr. Nuttall left the East, he resolved to dispose of his large collection of plants and accordingly presented them to the Herbarium of West Virginia University. This collection included thousands of specimens of flowering plants and ferns, but was especially valuable for the large collection of fungi, including about 1400 species. Type material of most of the species first found in Fayette County was represented.[11]

These quiet remaining years of his life gave him an opportunity to botanize on a year-round basis, in the equable climate of San Diego.

[9]John Nuttall (II) Letter to the author, March 27, 1952.

[10]Charles F. Millspaugh and Lawrence William Nuttall, "Flora of Santa Catalina Island", Field Mus. Nat. Hist. Publ. 212. 413 p. 1923.

[11]See "Former Student Gives Work to University", by Douglas Miller, **W.Va. Agriculturist,** Feb., 1929. The title is misleading; Mr. Nuttall was never a regularly enrolled student at the University. His son, John, however was a law student at the University in 1906-07 and married a Morgantown girl, Miss Linnie Vance. Their only child, Jack, died as a result of asphyxiation on June 28, 1952, leaving as survivors his wife and two daughters (John Nuttall, II, Letter to the Author, June 30, 1952).

He never missed an opportunity to meet botanists of the area, or to learn new and unusual plants of the region.

Lawrence William Nuttall died in San Diego October 16, 1933, after a rich, happy and profitable life. Old timers in Fayette County still recall with pleasure the days when they were citizens of the county and have suggested that members of the Southern Appalachian Botanical Club join in a pilgrimage to his old home at Nuttallburg. When invited to come back for the pilgrimage, planned for the spring of 1953, John Nuttall said, "Nothing would make me happier than to be able to join you and again tread all those familiar paths".

At Nuttallburg the old Nuttall mine is still in operation, now owned by the Maryland-New River Coal Company of Philadelphia. The tombstone of Mr. and Mrs. John Nuttall may be seen at Edmond, Fayette County. The fine old Nuttall homestead burned in 1921, and a summer cabin, near the Edmond cemetery, overlooking some of New River's most magnificent scenery, also burned long ago.[12]

[12]H. B. Tully, (Edmond, W.Va.). Letter to the author, November 18, 1952.

Some New or Otherwise Noteworthy Plants from West Virginia*

P. D. Strausbaugh and Earl L. Core

Stellaria **tennesseensis** comb. nov. (*Alsine tennesseensis* Small Flora Southeastern United States 422. 1903; *S. silvatica* Béquinot, Nuov. Giorn. Bot. Ital. 17: 385. 1910, not *S. sylvatica* Maxim., ex Regel, Bull. Soc. Nat. Moscow 35 (1): 302. 1862). This species differs from *S. pubera* Michx. in having sepals 7.5-11 mm. long, equaling or exceeding the petals, whereas in *S. pubera* the sepals are 4-6 mm. long, shorter than the petals. —Huntington, Cabell County, *F. A. Gilbert 47a;* Oglebay Park, Ohio County, *P. D. Strausbaugh*, April 20, 1929; Cairo, Ritchie County, *Mary Goodwin*, April, 1930.

Silene virginica L. var. **robusta** var. nov. Haec varietas a forma typica speciei recedit foliis 7-14 cm. longis, 2-4 cm. latis, calicibus 1.5-2 cm. longis.

Grant County, West Virginia: type collected near Petersburg Gap, *Wilbert M. Frye*, May 12, 1942, deposited in the Herbarium of West Virginia University. Another collection, at Smoke Hole Caverns, *L. Wayne Wilson*, June 8, 1945, is also in the same Herbarium. These collections could not be matched at the National Herbarium, Washington, D.C.

In typical *S. virginica* the leaves are 7.5-10 cm. long, while the calyx is 2.2 cm. long. The stem is densely villous. In most respects the plants appear like unusually vigorous specimens of *S. virginica.*

Anemonella thalictroides (L.) Spach, f. **rosea** comb. nov. (*Syndesmon thalictroides* Britton, f. *rosea* Millspaugh Bull. #24. W. Va. Exper. Sta. 319. 1892). This name may be used to indicate the pink-flowered form of the species. Millspaugh noted: "A beautiful rose colored clump of the species has persisted for two years in Monongalia at Little Falls near the Cascade".

West Virginia University.

*Contribution No. 69 from the Herbarium of West Virginia University.

NOTES and NEWS

SABC President Killed in Accident—In a shocking accident at Raleigh on November 13, William Basil Fox, assistant professor of botany at North Carolina State College, and president of the Southern Appalachian Botanical Club, was killed when a .22 rifle was accidentally discharged. He was 37 years of age, and among the most promising young botanists of the East.

Dr. Fox was born at Talcott, W.Va., July 20, 1915, and attended grade schools in Summers County, W.Va. He received a B.S. degree from West Virginia University in 1939 and an M.S. in 1940 from the same institution. His Ph.D. was from the University of Iowa in 1942. During the war he was an instructor in radar in the U.S. Air Force, from 1942 to 1945. After the conclusion of hostilities he served as assistant agronomist at the Agricultural Experiment Station of Washington, at Pullman (1945-46). He received his appointment to the staff of North Carolina State College in 1946.

In addition to this club, which he was serving as president, he was a member of the Botanical Society of America, the American Society of Plant Taxonomists, the Association of Southeastern Biologists, and the North Carolina Academy of Science. He had published numerous articles on the flora of North Carolina, and had studied the Leguminosae of Iowa, West Virginia, and North Carolina. He had just returned from a botanical expedition to Baja California.

He was married in 1944 to Helen Lee Hensleigh, who survives him. They had only one child, Stephen.

Dr. B. W. Wells, of the botany department at North Carolina State College, said, "It has been a terrible blow to all of us here for Bill was universally held in the highest regard. His course in dendrology was second to none and as curator of the Herbarium he had enlarged it and increased its efficiency far more than any other contributor had done. Bill will be almost irreplaceable."

Dr. P. D. Strausbaugh, under whom he studied at West Virginia University, commented: "In all of his work, he was enthusiastic, persistent, patient, and thorough. Back of his quiet, self-effacing manner there was a strength of character and forcefulness of industry that

became so clearly apparent in his altruistic outlook and rich achievement."

William Clarence Legg.—William Clarence ("Bill") Legg, nationally known naturalist of Mt. Lookout, West Virginia, died on May 30, 1952, as the result of a Memorial Day automobile accident near Summersville. He was born October 18, 1903.

He was a graduate of the Nicholas County Schools and a veteran of World War II. He had been visited at his rural home by naturalists from many parts of this country and from some foreign countries. He supplied materials and specimens to numerous educational institutions. Many of his plant collections may be seen at West Virginia University. He provided materials and assistance for books of various nature authors, including Don Echelberry, of Long Island, N.Y. Recently he had compiled notes for a book of his own.

At the time of his death he was making plans for a scientific expedition to Central America.

At Mt. Lookout he operated a small-scale nature-publishing house, "Twintiliana Press", where he issued little pamphlets to distribute to his friends. A sample is "Some Notes on Holly", published Feb. 5, 1947. "This", he said, "is a very limited edition—in fact, so limited that it's about the same as talking to myself". A selection from this illustrates his charming, informal style:

"A holly is a sort of an 'apartment' for myriads of insects. Some eat the leaf tissue between the leaf surfaces, some eat the bloom, the leaves, berries and many of them eat each other. As Fabre said, each is a guest and in turn the dish at the table of life. There's a balance here as in all of Nature and the little black fly, *Phytomza ilicis*, whose grub mars the holly leaf with its mine would increase this damage many fold were it not for a certain little wasp (*Braconid*, it seems) that preys on the fly. And I've seen this little wasp devoured by a larger insect (apparently a *Dolichopodidae*), which keeps its long abdomen curled up underneath itself. Conflicting with man's interest, *ilicis* is considered harmful, the other one beneficial, but there's no such distinction in Nature. They each fit the niche that they were adapted for. Like the hawk or an owl, they both fit perfectly in the niches they were created for. They know no other way than the beak and claw way so the gun has never 'educated' them to man's way.

"What has a hawk to do with holly? My alibi for this dissertation is probably that bugs eat holly, chickens eat bugs and hawks eat chickens."

Book Reviews

ANOTHER STATE FERN BOOK.**—The latest addition to the growing list of treatments of the ferns of individual states is on Michigan. The authorship is ascribed to Cecil Billington, but he died before the manuscript was completed, and the work was edited and added to by Dale Hagenah, Paul W. Thompson, and especially Dr. Stanley A. Cain. The last brought the nomenclature into accord with that in the 8th edition of Gray's Manual, and prepared distribution maps, by counties, of the taxa included.

About one fourth of the book is devoted to introductory discussions of the biology of ferns, their folklore, how to grow and how to identify them and so on, – all interestingly written and authoritative. Included are full page half-tone plates representing splendid enlarged views of the fertile fronds of several species, the work of Charles Neidorf. There are also some fair habitat views. A novelty is a pictorial glossary, in which instead of verbal definitions, a drawing showing the significance of the term is presented. Most of these are well done, although "tripinnate" on page 64 should be replaced by ternate.

Then the individual families and their constituent genera and species are taken up in the Gray's Manual sequence, the keys and descriptions being in many cases better than those in the Manual. For most of the species there are line drawings showing habit and reproductive details, and a county map of the state with dots showing where the plants are known to have been collected. The drawings vary considerably in quality, many being excellent, but a few somewhat misleading, as for instance the habit sketch of *Lycopodium complanatum* and the indusium attributed to *Cystopteris fragilis*.

EDGAR T. WHERRY.

**Ferns of Michigan. Cecil Billington. Cranbrook Institute of Science Bulletin No. 32, Bloomfield Hills, Michigan, 1952. 239 + vii pages. $5.00.

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